

CLAIMS

1. A portable collapsible keyboard for input of data
into a digital electronic device, said keyboard
5 comprising:

a) a first keyboard section having a
top surface, a front surface and a
rear surface, and a first plurality
10 of keys having keytops facing upward
from said top surface, said first
plurality of keys arranged
substantially adjacent to one
another to form a substantially
contiguous first array of keys, said
15 keytops of said first array of keys
forming a substantially planar first
keytop surface,

b) a second keyboard section having a
top surface, a front surface and a
20 rear surface, and a second plurality
of keys having keytops facing upward
from said top surface, said second
plurality of keys arranged
substantially adjacent to one
25 another to form a substantially

contiguous second array of keys,
said keytops of said second array of
keys forming a substantially planar
second keytop surface,

5 c) a rear pivot mechanism for pivoting
said second keyboard section with
respect to said first keyboard
section, said rear pivot mechanism
connected to said first keyboard
10 section adjacent to said rear
surface and having an axis of
rotation fixed with respect to said
first keyboard section,

15 d) a front pivot mechanism for pivoting
said second keyboard section with
respect to said first keyboard
section, said front pivot mechanism
connected to said first keyboard
section adjacent to said front
20 surface and having an axis of
rotation fixed with respect to said
first keyboard section,

e) an elongate link of fixed length for
spacing said first and said second

keytop surfaces, said link pivotally
connected at its first end to said
front pivot mechanism, said link
connected at its other end to said
5 second keyboard section such that,
when said keyboard is in an open
configuration with said first and
second keytop surfaces substantially
parallel and facing the same
10 direction, said link separates by a
fixed distance the frontward
portions of said first and said
second keytop surfaces, and

f) wherein said keyboard is collapsible
15 through a pivoting action from said
open configuration to a closed
configuration in which said first
and second keytop surfaces are in a
face-to-face relationship.

20 2. The keyboard of claim 1 wherein said first and
second pivot mechanisms align any relative
rotation of said second keyboard section with
respect to said first keyboard section about an
x-axis fixed with respect to said first keyboard

section and resist any relative rotation about all other axes.

3. The keyboard of claim 2 wherein said second keyboard section rotates 180 degrees about said x-axis to collapse said keyboard from said open configuration to said closed configuration.
4. The keyboard of claim 1, further comprising a substantially planar display attached to said first keyboard section, said display having a front surface for display of information from a multifunctional portable digital electronic device.
5. The keyboard of claim 1, wherein at least one of said front and said rear pivot mechanisms comprises a lug and axle.
6. The keyboard of claim 5, wherein said lug and said axle comprise journal bearing surfaces and wherein said lug comprises a thrust bearing surface.
7. The keyboard of claim 1, wherein said first and second pluralities of keys comprise substantially all of the keys from the respective right and left halves of a ``QWERTY'' keyboard.

8. The keyboard of claim 1, wherein said first plurality of keys comprises a first space bar and said second plurality of keys comprises a second space bar.

5 9. The keyboard of claim 4, wherein:

- 10 a) said first and second pivot mechanisms align any relative rotation of said second keyboard section with respect to said first keyboard section about an x-axis fixed with respect to said first keyboard section and resist any relative rotation about all other axes,
- 15 b) said second keyboard section rotates 180 degrees to collapse said keyboard from said open configuration to said closed configuration,
- 20 c) at least one of said front and said rear pivot mechanisms comprises a lug and axle,

- d) said lug and said axle comprise journal bearing surfaces,
- e) said lug comprises a thrust bearing surface,
- 5 f) said first and second pluralities of keys respectively comprise keys from the right and left portions of a ``QWERTY'' keyboard, and
- 10 g) said first plurality of keys comprises a first space bar and said second plurality of keys comprises a second space bar.

10. A multifunctional portable electronic device,
15 comprising:

- a) A display,
- b) A collapsible keyboard attached to said display, comprising:
 - 20 i. a first keyboard section having a top surface, a front surface and a rear surface, and a first plurality of keys having keytops

facing upward from said top surface, said first plurality of keys arranged substantially adjacent to one another to form a substantially contiguous first array of keys, said keytops of said first array of keys forming a substantially planar first keytop surface,

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ii. a second keyboard section having a top surface, a front surface and a rear surface, and a second plurality of keys having keytops facing upward from said top surface, said second plurality of keys arranged substantially adjacent to one another to form a substantially contiguous second array of keys, said keytops of said second array of keys forming a substantially planar second keytop surface,

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iii. a rear pivot mechanism for pivoting said second keyboard section with respect to said first keyboard section, said rear pivot mechanism connected to said first keyboard section adjacent to said rear surface and having an axis of rotation fixed with respect to said first keyboard section,

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iv. a front pivot mechanism for pivoting said second keyboard section with respect to said first keyboard section, said front pivot mechanism connected to said first keyboard section adjacent to said front surface and having an axis of rotation fixed with respect to said first keyboard section,

v. a link of fixed length for spacing said first and said second keytop surfaces, said link pivotally connected at its first end to said front pivot mechanism, said link connected at its other end to said second keyboard section such that, when said keyboard is in an open configuration with said first and second keytop surfaces substantially parallel and facing the same direction, said link separates by a fixed distance the frontward portions of said first and said second keytop surfaces, and

wherein said keyboard is collapsible through a pivoting action from said open configuration to a closed configuration in which said first and second keytop surfaces are in a face-to-face relationship.

11. The device of claim 10, wherein said display is pivotally attached to said second keyboard section.
12. The device of claim 10, wherein said display is attached to said first keyboard section.
13. The device of claim 10 wherein said first and second pivot mechanisms align any relative rotation of said second keyboard section with respect to said first keyboard section about an x-axis fixed with respect to said first keyboard section and resist any relative rotation about all other axes.
14. The device of claim 13 wherein said second keyboard section rotates 180 degrees about said x-axis to collapse said keyboard from said open configuration to said closed configuration.
15. The device of claim 10, wherein said display is substantially planar and has a front surface for display of information from said device.
16. The device of claim 10, wherein at least one of said front and said rear pivot mechanisms comprises a lug and axle.

17. The device of claim 16, wherein said lug and said axle comprise journal bearing surfaces and wherein said lug comprises a thrust bearing surface.
- 5 18. The device of claim 10, wherein said first and second pluralities of keys comprise substantially all of the keys from the respective right and left halves of a ``QWERTY'' keyboard.
- 10 19. The keyboard of claim 10, wherein said first plurality of keys comprises a first space bar and said second plurality of keys comprises a second space bar.